

## CLAIMS

1. Electronic device for delivering yarn to textile machines, able to regulate the delivery of yarn by varying the rotating speed of at least one motor (1),  
5 so as to maintain said speed as synchronised as possible, according to an adjustable scale factor, with respect to the rotating speed of the textile machine served, characterised in that said device is associated with each yarn-winding wheel (3) for delivering each  
10 single thread (11) to the textile machine, said device including said motor (1) and an electronic control board (2) of the motor (1), equipped with at least one microcontroller, which is able to control the rotating speed of the motor (1) and the currents in the phases  
15 of said motor (1) and which is able to maintain said rotating speed and, therefore, the delivery speed of the thread (11) synchronous with the rotating speed of the cylinder of the textile machine.
2. Electronic device for delivering yarn according to  
20 claim 1, characterised in that said yarn-winding wheel (3) is fitted onto the shaft of the motor (1) and suitably shaped to ensure the correct winding and unwinding of the yarn.
3. Electronic device for delivering yarn according to  
25 claim 1, characterised in that said device also

comprises a pair of small mobile arms (8, 10), suitable for checking the presence of the thread (11) at the entrance and at the exit of said wheel (3), the position of said arms (8, 10) being detected through 5 sensor means, the signals of which are detected by the microcontroller of the electronic control board (2).

4. Electronic device for delivering yarn according to claim 1, characterised in that said device includes at least one support and attachment plate (4), a support 10 (5) for a yarn-guiding tube (12), a thread-tightener (6), a stopper device (7) and a thread-tightener ring (9).

5. Electronic device for delivering yarn according to claim 1, characterised in that said motor (1) is a d.c. 15 brushless motor, which includes sensor devices for detecting the position of the rotor outside said motor (1).

6. Electronic device for delivering yarn according to claim 3, characterised in that said electronic control 20 board (2) of the motor (1) controls a driver, which switches the phases of the motor (1) and the current to be delivered to said phases, said electronic board (2) being able to detect the signals received from said sensor means and the input frequency coming from a 25 first encoding device, which is engaged with the

cylinder of the textile machine, in order to compare said input frequency with the output frequency deriving from a second encoding device fitted onto the shaft of said motor (1).

5 7. Electronic device for delivering yarn according to claim 6, characterised in that said electronic control board (2) detects the logic signals coming from a set of sensors, which may be activated for interrupting the delivery of yarn, said electronic board (2) being able  
10 to manage an asynchronous serial interface for communicating with a central controller of the textile machine, in order to receive a set of configuration parameters, including a synchronism ratio.

8. Electronic device for delivering yarn according to  
15 claim 1, characterised in that said device includes at least one output for the remote signalling of a stop condition of the machine and means for displaying said stop condition.

9. Electronic device for delivering yarn according to  
20 claim 1, able to deliver thread (11) from a single delivering point of the textile machine, in order to program a synchronism ratio as desired for each electronic device, said synchronism ratio also being reprogrammable even when the machine is working.

25 10. Electronic device for delivering yarn according to

claim 1, characterised in that said device is fixable in positions different with respect to positions attached to the circumference of the cylinder of the textile machine.

5 11. Electronic device for delivering yarn according to claim 7, characterised in that said serial interface enables identification and memorisation of the device that has detected the error and the deliver point causing the machine to stop, in the event of breaking  
10 of each single thread (11).

12. Electronic device for delivering yarn according to claim 1, characterised in that a synchronism command is deactivable on at least one electronic device, by means of the central controller of the textile machine, so as  
15 to ease the reknitting operations of each thread (11) resulting from the closing of the eyes of the needles.

13. Electronic device for delivering yarn according to claim 11, characterised in that said stop of the textile machine is ordered by the electronic control  
20 board (2) of the motor (1), in the event that said motor (1) has lost synchronism causing from an anomalous tension of the thread (11) entering the yarn-winding wheel (3), thus identifying friction points of the thread (11), along its path, which do not allow a  
25 suitable unwinding of said thread (11) from the reel.